

THE CLAIMS

What is claimed is:

- 5 1. A merchandiser for displaying and warming previously baked dough products under controlled drying conditions, comprising:
- an enclosure having one or more wall members that define an interior space, with at least a portion of one of the wall members being transparent;
- at least one opening for access into the interior space;
- 10 a removable support member within the enclosure that includes at least one support surface for previously baked dough products and a spacing arrangement configured and adapted to reproducibly position the support member within the interior space of the enclosure member to facilitate substantially uniform airflow around each support surface and throughout the enclosure; and
- 15 a heating system for providing heated air in the enclosure, wherein the substantially uniform airflow provides controlled drying of the previously baked dough products in the enclosure.
2. The merchandiser of claim 1, wherein the enclosure has four wall members
- 20 arranged in a generally rectangular configuration, the support member includes a frame, and the spacing arrangement is operatively associated with the frame and wall members to provide sufficient spacing between the frame and wall members to facilitate the substantially uniform airflow around the products.
3. The merchandiser of claim 2, wherein the frame has a generally rectangular configuration with sides that correlate to the wall members, and the spacing arrangement includes spacing members that are present on each side of the frame.
- 25 4. The merchandiser of claim 3, wherein the frame comprises a wire rack
- 30 configured and dimensioned to minimize interruption of airflow within the enclosure, and the spacing members comprise portions of the wire rack that extends toward the wall members to position the wire rack at a substantially central location in the enclosure so as to provide an air gap on each side of the frame.

5. The merchandiser of claim 4, wherein one of the wall members includes a door for closing the opening, and the wire rack and spacing members are configured and dimensioned to allow positioning of the frame in the enclosure in at least a first position where the support surface(s) are angled downward to face the door and a second position where the support surface(s) face away from the door and are angled downward to face an optional second door opposite from the door.

6. The merchandiser of claim 5, wherein each door is held in a closed position by magnetic force and includes a handle that is sufficiently large to be grasped by an insulating hot pad when the door is to be opened to gain access to the baked products in the enclosure.

7. The merchandiser of claim 1, wherein the support member includes two or three support surfaces, and the enclosure comprises an insulation layer located beneath a bottom wall of the enclosure to inhibit or prevent heat loss from the enclosure.

8. The merchandiser of claim 1, further comprising a mounting structure associated with the support member for mounting and positioning each support surface at a user accessible location and wherein each support surface is part of a tray that includes a lip extension to inhibit or prevent baked products from sliding off the support surface and is removably mounted upon the support member to facilitate removal for product placement thereon or cleaning thereof.

9. The merchandiser of claim 1, wherein the enclosure further comprises one or more lights to illuminate a portion of the baked products in the enclosure in a manner that does not generate an amount of heat that substantially affects the controlled drying of baked products that are exposed to the light(s).

10. The merchandiser of claim 1, wherein the heating system operates to maintain the interior space of the enclosure at a temperature of about 90°F to about 180°F and the baked product retains its organoleptic properties for a period of at least about 4 hours and is located sufficiently remote from the baked products and each support surface,

such that direct contact or radiative heating of the products on each support surface by the heating system is at least substantially avoided.

11. The merchandiser of claim 10, wherein the heating system comprises a heat
5 source sufficient to heat the enclosure to provide controlled drying of the baked products therein, an air-moving device sufficient to circulate heat from the heat source through the enclosure, and a reflective member positioned near the air-moving device to inhibit or prevent overheating of the air-moving device from heat generated from the heat source.

10 12. The merchandiser of claim 11, wherein the enclosure includes a front wall, a pair of side walls, and a rear wall with the front and rear walls being disposed between the side walls, and a housing structure that contains the heating system and that is disposed above each wall of the enclosure, so that the heating system is arranged to direct heated air downwardly into the enclosure and toward at least one wall of the enclosure at an angle of
15 about 10 to 50° with respect to the wall.

13. The merchandiser of claim 12, wherein the housing structure includes:
an outlet configured and positioned to direct heated air into the enclosure; and
an inlet to receive air from the enclosure that requires additional heat from the heat
20 source to maintain the controlled drying of the previously baked dough products in the enclosure, wherein the outlet from the heating system corresponds to a portion of the space between a support surface and at least one wall sufficiently to control the substantially uniform airflow and the drying of the products in the enclosure.

25 14. The merchandiser of claim 13, wherein the outlet directs the heated air to enter the enclosure at a distance of about 0.125 to 1.5 inches from one of the walls to facilitate convective flow of the heated air between the support member and the enclosure walls.

30 15. The merchandiser of claim 1, further comprising a temperature control system capable of maintaining the heated air at a temperature constant throughout the enclosure to within about 10°F above or below a temperature that is selected based on the

type of baked products to be placed in the merchandiser, wherein the enclosure comprises a heat-resistant thermoplastic component.

16. The merchandiser of claim 15, wherein the temperature is maintained at a constant to within about 5°F above or below the selected temperature.

17. The merchandiser of claim 15, wherein the temperature control system comprises a proportional controller having a control circuit and sensor signal that regulates electric power based on a signal that is proportional to the differential of sensed temperature and selected temperature, a solid state rectifier operatively associated with the control circuit and sensor signal to provide the selected temperature, and a digital interface so that a user may readily set or change the selected temperature based on the type of baked products that are to be introduced into the merchandiser.

18. The merchandiser of claim 17, wherein the digital interface of the temperature control system is located outside the enclosure either on or above a wall member adjacent to the at least one opening to facilitate setting of the selected temperature and automatically defaults to the selected temperature setting when turned on after a shut off period.

19. The merchandiser of claim 17, wherein the temperature control system includes at least one pre-programmed setting for a specific type of baked products, a plurality of pre-programmed settings for different types of baked products, or a memory device that automatically stores a manually set temperature and recalls the previously set temperature when the merchandiser is activated, or a combination thereof.

20. A merchandiser for displaying and warming previously baked dough products under controlled drying conditions comprising:
an enclosure having one or more wall members that define an interior space, with at least a portion of one of the wall members being transparent;
at least one opening for access into the interior space;
at least one support member within the enclosure that includes at least one support surface for previously baked dough products; and

a heating system for providing heated air to the enclosure that comprises:
a heat source;
an air-moving device to transfer heated air from the heat source to the enclosure; and

5 at least one reflective device that is positioned near the air-moving device to inhibit or prevent overheating of the air-moving device from heat generated from the heat source.

21. A method for displaying and warming previously baked dough products
10 under controlled drying conditions in a merchandiser which comprises:
providing a temperature-controlled, heated enclosure defined by a plurality of walls;
circulating heated air within the enclosure at a rate that avoids overdrying the baked products over a period of at least about 2 hours; and
supporting the previously baked dough products on a support member comprising at
15 least one support surface within the enclosure;
wherein the heated air is forced into the enclosure from at least one air inlet through a space provided between the support surface and at least a first wall of the enclosure that is substantially perpendicular to the support surface, so that a substantially uniform heated airflow is provided around at least the support member to control the drying of the
20 previously baked dough products in the enclosure.

22. The method of claim 21, wherein the at least one air inlet is provided adjacent the first wall of the enclosure and directs the flow of air exiting said inlet at a desired angle toward the first wall.

23. The method of claim 21, wherein at least one air outlet is provided to pull air from another space provided between the support surface and at least a second wall of the enclosure, said second wall being substantially perpendicular to the support surface and opposite to the first wall.

24. The method of claim 21, wherein a portion of the air flowing into the space further flows in a direction substantially perpendicular to the first wall and adjacent each support surface.

25. A method for displaying and warming previously baked filled dough products under controlled drying conditions which comprises:

- 5 providing previously baked filled dough products that contain a predetermined average moisture level of the filling in an enclosed space upon a support surface such that the support surface contacts at least a portion of the baked products;
- providing and circulating heated air in the enclosed space to assist in the controlled drying of all the baked products in the enclosure so that those contacted portions of the baked products are shielded from direct contact with the heated air; and
- 10 controlling temperature in the enclosure uniformly to within about 12°F of a selected temperature to inhibit moisture loss from each of the baked products to less than about 10 weight percent over a period of at least about four hours.

- 26. The method of claim 25, wherein the temperature in the enclosed
- 15 space is maintained at a selected temperature of between 140°F to 180°F and within about 10°F of the selected temperature.